

USSR

UDC 577.1:615.7/9

VASIN, M. V., SAKSONOV, P. P., ANTIPOV, V. V., and SHASHKOV, V. S.

"Antiradiation Effectiveness of Cystamine Under Varying Conditions of gamma-Irradiation"

V sb. Probl. kosmich. biol. (Problems in Space Biology -- Collection of Works), Vol 14, Moscow, "Nauka" (Science), 1971, pp 121-131 (Russian) (from RZh-Biologicheskaya Khimiya, No 20, 25 Oct 71, Abstract No 20F1712 from summary)

Translation: It was established that with intraperitoneal injection of cystamine 5-10 minutes before gamma-irradiation (139-159 roentgens/min) a linear dependence of radioprotective activity (RA), as determined from the cystamine dose reduction factor, on the drug dose is observable. Increasing the time of the injection of cystamine in a dose of 150 mg/kg (30 min before irradiation) had no effect on cystamine RA. Injection of cystamine 1 hours before irradiation sharply lowered -- and 8-12 hours before completely canceled -- cystamine RA. With doses of 50-100 mg/kg a lowering of RA was noted in earlier stages. With irradiation for 1.5-4 hours (total dose 950-1200 roentgens) the RA of cystamine, cystaphos, 5-methoxytryptamine and S,  $\beta$ -aminoethylisothiuronium bromide hydrobromide (AET) declined sharply.

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UDC 577.1:615.7/9

GAYDAMAKIN, N. A., KUL'KIN, S. G., DAVYDOV, B. I., and SILASHKOV, V. S.

"Effect of Pharmacological Agents on Reactivity of Organism to Combined Exposure to gamma-Irradiation and Transverse Overloads"

V sb. Probl. kosmich. biol. (Problems in Space Biology -- Collection of Works), Vol 14, Moscow, "Nauka" (Science), 1971, pp 336-350 (Russian) (from RZh-Biologicheskaya Khimiya, No 20, Oct 71, Abstract No 20F1714 from conclusions)

Translation: Male mice of the C57BL strain were subjected to gamma-ray irradiation with Co-60 in a dose of 350 or 700 roentgens (dose rate 18 roentgens/min), and a day later to overloads in the amount of 10 units for 30 min (centrifuge). The effect of these factors was studied in an experimental group of animals against a background of the combined injection, 15-30 min prior to irradiation, of 75 mg/kg each of cystamine and S, $\beta$ -aminoethylisothiuronium (AET). It was established that the effect of the overloads one day prior to irradiation decreases radiation damage to the hematopoietic organs, while in the event of such exposure a day after irradiation there was observed an insignificant intensification of radiation depletion of the spleen and bone marrow and an increase of destructive lesions in the peripheral nervous system. Cystamine  
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GAYDAMAKIN, N. A., et al., Probl. kosmich. biol. (Problems in Space Biology -- Collection of Works), Vol 14, Moscow, "Nauka" (Science), 1971, pp 336-350 (Russian) (from RZh-Biologicheskaya Khimiya, No 20, Oct 71, Abstract No 20F1714 from conclusions)

in conjunction with AET has an antiradiation protective effect both in case of irradiation without overloads and in case of their combined action. In the latter case nonuniform damage to various divisions of the peripheral nervous system is noted.

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1/2 028

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--PHARMACOLOGICAL ACTION OF MEXAMINE WITH DIFFERENT ROUTES OF ITS  
ADMINISTRATION INTO INTACT DOGS -U-

AUTHOR--(04)-SHASHKOV, V.S., ANISIMOV, B.V., NOVIKOVA, S.P., TKACHENKO,  
P.A.

COUNTRY OF INFO--USSR

SOURCE--FARMAKOL. TOKSIKOL. (MOSCOW) 1970, 33(3), 278-82

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DOG, MEXAMINE, DRUG EFFECT, BLOOD PRESSURE, RESPIRATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FILE NO----FD70/605004/B04 STEP NO--UR/0390/70/033/003/0278/0282

CIRC ACCESSION NO--AP0139592

UNCLASSIFIED

2/2 028

CIRC ACCESSION NO--AP0139592

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MEXAMINE, GIVEN TO NONANESTHETIZED DOGS AT 10 MG-KG I.M. OR 100 MG-KG INTRAGASTRICALLY, DURING THE 1ST 15 MIN ACCELERATED THE PULSE AND INCREASED AND THEN DECREASED BOTH THE SYSTOLIC AND PULSE PRESSURES. AFTER THAT, IN DOGS WHICH HAD RECEIVED THE COMPO. INTRAGASTRICALLY, THE AMPLITUDE AND FREQUENCY OF RESPIRATION AND THE SYSTOLIC, DIASTOLIC, AND PULSE PRESSURES ALL VARIED ABOVE AND BELOW NORMAL LEVELS DURING THE 100 MIN AFTER ADMINISTRATION, WHILE IN DOGS WHICH HAD RECEIVED THE COMPO. I.M., ALL THESE VALUES REMAINED ABOVE NORMAL. THE I.M. INTRODUCTION OF THE COMPO. CAUSED A MUCH GREATER INITIAL RESPIRATION RATE INCREASE THAN DID THE INTRAGASTRIC INTRODUCTION.

UNCLASSIFIED

USSR

SHASHKOVA, K. P., All-Union Institute of Plant Protection

"Conditions That Promote Orange Leaf Rust Epiphytotics in the Forest-Steppe Zone of the Ukraine"

Leningrad, Mikologiya i Fitopatologiya, No 6, 1972, p 464

**Abstract:** Orange leaf rust epiphytotics in the forest-steppe zone of the Ukraine are caused by local sources of infection, chiefly winter crops infected since the fall. Local wild grasses do not transmit the infection. Most wheat varieties in this zone are susceptible and they become infected in epiphytic years. The most vulnerable are the Mironovskaya 808 and Eritrospermum 121 varieties which are widely regionalized in this zone. Avrora and Kavkaz are more resistant. The rate of infection is 0.20 per unit of leaf surface a day on Mironovskaya 808 and 0.04 and 0.02 on Avrora and Kavkaz, respectively. The most important factors to be considered in long-term forecasts of epiphytotics are the air temperatures in October of the preceding year, weather conditions prevailing during the overwintering period of the pathogen, air temperatures in the spring, and total precipitation in the fall months.

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UDC 582.285.58.08

ANDREYEV, L. N., MAZIN, V. V., and SHASHKOVA, L. S., Main Botanical Garden,  
Academy of Sciences USSR, Moscow

"Growth of the Agent of Stem Rust of Wheat (*Puccinia graminis* f. sp. *tritici*)  
under Saprophytic Conditions"

Moscow, Doklady Akademii Nauk SSSR, Vol 207, No 5, 1972, pp 1247-1249

Abstract: *Puccinia graminis* grew well on a medium containing glucose, peptone and mineral salts for 90 days or more after which the fungus generally underwent autolysis. On the same medium without glucose, the fungus grew about 40 days and formed colonies consisting of shorter and more twisted hyphae. Similar colonies were observed when soluble starch (2%) was substituted for glucose and growth continued about 60 days. The weaker and less sustained growth of the pathogen on the medium with starch compared to that on the medium with glucose (or sucrose) suggests that exogenous amylase is a significant factor only under saprophytic conditions in the absence of mono- and oligosaccharides in the medium. There was abundant germination of uredospores and formation of colonies growing saprophytically on the surface of agar-covered medium.

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UNCLASSIFIED

PROCESSING DATE--18SEP70

TITLE--INTERACTION OF LYSOZYME WITH LOW MOLECULAR WEIGHT INHIBITORS AND  
MODIFIED SUBSTRATES CONTAINING BETA (1 TO 4) AND BETA (1 TO 6)

AUTHOR-(04)--SHASHKOVA, YE.A., VIKHA, I.V., VICHUTINSKIY, A.A., KHLORIN,

A.YA.

COUNTRY OF INFO--USSR

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SOURCE--BIOKHIMIYA 1970, 35(1), 124-31

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--AMINE DERIVATIVE, SACCHARIDE, BACTERIA, CELL PHYSIOLOGY,  
ENZYME ACTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/0850

CIRC ACCESSION NO--AP0055551

STEP NO--UR/0218/70/035/001/0124/0131

UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0055551

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SPECIFICITY OF LYSOZYME WAS STUDIED IN RELATION TO THE POSITION OF THE GLYCOSAMINIDE LINKAGES BETWEEN THE MONOSACCHARIDE BONDS OF THE SUBSTRATE DURING INTERACTION OF THE ENZYME WITH THE FOLLOWING COMPOS.: N ACETYLGLUCOSAMINE, N,N' DIACETYLCHILOBIOSE, N,N',N'' TRIACETYLCHITOTRIOSE, P NITROPHENYL BETA N, (I), P NITROPHENYL O (2 ACETAMIDO, 2 DEOXY BETA D GLUCOPYRANOSYL), (I YIELDS 6) O 2 ACETAMIDO 2 DEOXY, BETA D GLUCOPYRANOSIDE (II), P NITROPHENYL O (2 BENZAMIDO, 2 DEOXY BETA D GLUCOPYRANOSYL), (II YIELDS 6) NITROPHENYL O (2 ACETAMIDO, 2 DEOXY BETA D GLUCOPYRANOSIDE), AND P O 2 ACETAMINDO 2 DEOXY BETA D GLUCOPYRANOSYL, (I YIELDS 4) 2 DEOXY, BETA-D GLUCOPYRANOSIDE (III). THE CONCNS. OF THESE COMPOS. REQUIRED TO INHIBIT BY 50PERCENT THE LYSIS OF MICROCOCCUS LYSODEIKTICUS BACTERIAL WALLS WAS DETD. THESE DATA PLUS LIT. CONSTS. OF DISOCN. FOR THE LYSOZYME COMPLEXES OF THE 1ST 2 COMPDs. (REPORTED ELSEWHERE) WERE USED TO CALC. THE K SUBI VALUES FOR THE COMPOS. STUDIED. THIS PERMITTED QUANT. CALCN. OF THE AFFINITY AT THE ACTIVE SITE OF THE ENZYME. FOR I AND II THE POSITION OF THE GLYCOSIDIC BONDS BETWEEN THE MONOSACCHARIDE UNITS DET. THE COMPLEMENTARITY OF THE SUBSTRATE AT THE ACTIVE SITE. III CONTAINS BOTH THE I YIELDS 44 AND I YIELDS 6 GLYCOSAMINIDIC BONDS AND SHOWS STRONG AFFINITY TO THE ACTIVE SITE OF LYSOZYME AND CAN BE HYDROLYZED BY THIS COMPO. WITH SUBSEQUENT TRANSGLYCOSYLATION.

UNCLASSIFIED

USSR

UDC 576.895.4

MULYARSKAYA, L. V., KOROBINNIKOV, A. S., DZHEBRAILOV, D. D., BABAYEV, A. G.,  
SHASINIKOVA, N. V., and MOVSUMOV, M. A.

"Trombiculid Mites (Acariformes, Trombiculidae) of Western Azerbaijan"

Baku, Izvestiya Akademii Nauk Azerbaydzhanskoy SSR, Seriya Biologicheskikh  
Nauk, No 3, 1971, pp 77-82

**Abstract:** The Institute of Zoology, Academy of Sciences Azerbaijan SSR, conducted a study of the distribution of trombiculid mites in Western Azerbaijan in 1967-68 jointly with the Azerbaijani Antiplague Station. The principal host of these blood-sucking parasites in Western Azerbaijan was found to be the red-tailed gerbil (*Meriones erythrourus*) because of the large number of animals of this species. Some significance as hosts of trombiculid mites can also be ascribed to the Asia Minor gerbil (*Meriones tristrami*), house mouse, common and social voles, and the weasel. The number of mites varied with the season and with climatic conditions at various elevations of this mountainous area. The largest number of Trombiculidae species (nine species) infested *Meriones erythrourus*. Weasels were infested exclusively with *Miyatrombicula caucasicus*. The bird mite *Neoschoengastia thomasi* was found on forest dormice and the 1/2

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ULYARSKAYA, L. V., et al., Izvestiya Akademii Nauk Azerbaydzhanskoy SSR,  
Seriya Biologicheskikh Nauk, No 3, 1971, pp 77-82

mite *Trombicula callosa*, which usually infests lizards, was found to occur  
on hedgehogs. The most numerous species of trombiculid mites was Micro-  
*trombicula azerbaijanica*, which was followed by *Leewenhookia major*.

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USSR

UDC: 8.74

NELEDVA, V. A., SHASHONOK, I. A.

"Optimizing the Reliability of Elements of Complex Systems With Regard to Economic Factors"

V sb. Osnovn. vopr. teorii i praktiki nadezhnosti (Basic Problems in the Theory and Practice of Reliability--collection of works), Moscow, "Sov. radio", 1972, pp 298-327 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V1118)

Translation: The paper deals with the effect of economic factors on requirements for reliability of elements and systems as a whole. It is shown that in regard to these factors, the attempt to maximize reliability is neither economically nor technically feasible. An approach is presented for the problem of establishing effective reliability limits, and a method is outlined for optimizing the reliability of elements in restorable systems. Author's resumé.

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"APPROVED FOR RELEASE: 07/20/2001

CIA-RDP86-00513R002202910012-2

112 025  
TITLE--KINETICS OF THE OZONE OXIDATION OF NEPTUNIUM VI TO NEPTUNIUM VII IN  
ALKALINE SOLUTIONS -U-  
AUTHOR--(02)-SHASHUKOV, YE.A., KOZLOV, A.A.

UNCLASSIFIED

PROCESSING DATE--04DEC70

COUNTRY OF INFO--USSR

SOURCE--RADIOKHIMIYA 1970, 12(2), 237-42

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--OZONE, OXIDATION, NEPTUNIUM, ACTIVATION ENERGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1716

CIRC ACCESSION NO--AP0125337

STEP NO--UR/0186/70/012/002/0237/0242

UNCLASSIFIED

APPROVED FOR RELEASE: 07/20/2001

CIA-RDP86-00513R002202910012-2"

2/2 025

CIRC ACCESSION NO--AP0125337

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN OZONE (0.1-0.5 VOL. PERCENT) OXIDN. OF NP(VI) (10 PRIME NEGATIVE5 G. ATOM-L.) TO NP(VII) IN 1-4M KOH AT 0-20DEGREES THE REACTION RATE CAN BE DESCRIBED BY THE EQUATION D(NP(VII))-DT EQUALS K (NP(VI))-(OH PRIME NEGATIVE) PRIME0.5(D SUB3) SUBGAS PRIME0.5. THE APPARENT RATE CONSTS. PERMIT A CALCN. OF THE REACTION RATE OVER A WIDE INTERVAL OF CONDITIONS. THE ACTIVATION ENERGY FOR THE OXIDN. OF NP(VI) BY OZONE AT 0-20DEGREES IS 5 KCAL.-MOLE. A REACTION MECHANISM IS POSTULATED.

UNCLASSIFIED

*S'YASKOL'SKAYA, MP.*

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III-3. DETERMINATION OF THE CONDITIONS OF INTENSE MIXING OF A MELT BY AN EXTERNAL MOBILE MAGNETIC FIELD FOR GROWTH OF SEMICONDUCTING SINGLE CRYSTALS

Article by V. V. Antipov, K. N. Rotin, M. P. Shashol'skaya, M. Yu. Rerubov, N. V. Krasil'nikov  
III Sionizmnoe Proizvodstvo Rente i Sinteticheskikh Poluprovodnikov, Moscow, Novosibirsk

Per. 12-17 June, 1972, p. 271

"In the crystals which in the molten state are characterized by semiconducting properties can be used which in the general case has translational and rotational ponderomotive interaction of the magnetic field with the electrically conducting melt.

The Faraday effect is achieved here in the case of the turbulent nature of mixing of the melt in the hydrodynamic boundary layer.

The theory of the hydrodynamic boundary layer permits establishment of the laminar nature of the basic conditions at the crystallization front for the existence of the turbulent

interaction of the magnetic field with the melt.

In view of the difficulty of the detailed calculation of the ponderomotive similarity was used which on the basis of studying the behavior of approximate material permit determination of the required parameters of the model insuring mixing of any other melt in the given regime.

On the basis of the theoretical relations obtained and the experimental research on melts of materials, the optimal values of the intensity of the external mobile magnetic field were calculated for various semiconducting materials.

A comparison of the results obtained with the known published data indicates their satisfactory correspondence.

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UDC 548.55

ROZIN, K. M., KREYNIN, O. L., and SHASKOL'SKAYA, M. P., Moscow Institute of  
Steel and Alloys

"Calculation of Effective Impurity Distribution Coefficients in Growing  
Single Crystals From the Melt"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, Vol 7,  
No 7, Jul 71, pp 1105-1109

**Abstract:** From the investigation of KCl-monocrystals with Pb, Zn, and Cu  
impurities, grown from melt by the Kirovsk method, it was found that the  
distribution of impurities does not comply with the distribution character  
determined from a usually used function. This non-conformity is analyzed  
and it is demonstrated that in the real growing process the part of the  
liquid phase which practically reacts with the growing crystal has to be  
considered and that the mentioned non-conformity can be taken into account  
by experimentally determinable distribution coefficients. An equation  
characterizing the impurity distribution is presented. Four illustrations,  
three formulas, thirteen bibliographic references.

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USSR

Forming

UDC 621.73.043

ATROSHENKO, A. P., SEDEL'NIKOV, YE. P., SHASTIN, E. G., and SEVEROV, M. A.  
"Precise Barb Stamping of Turbine Blades"

Moscow, Kuznechno-Shtampovochnoye Proizvodstvo, No 6, Jun 73, pp 1-4

**Abstract:** A study is made of precision stamping of turbine blades with minimum allowances for cutting (and in some cases allowance only for burnishing and finishing). The precision stamping represents a departure from stamping with the usual allowances, governed by GOST7505-55. The new technology involves hot-stamping crankshaft presses and is used to forge 212-mm-long turbine blades for the 16th working stage of the VT-100 turbine. Comparative data are presented for material expenditures under the old and new methods. Five figures, and one table.

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USSR

UDC 612.1+616.1(99)

DERYAPA, N. R., SHASTIN, I. V., and VENTSENOVSTSEV, B. B.

"Physiology and Pathology of the Circulatory System in the Antarctic"  
Moscow, Antarktika, Doklady Komissii, No 11, 1972

Translation of abstract: The article presents the results of systematic studies on blood circulation in polar explorers during acclimation at the coastal stations and on sled-tractor trips. The authors observed 303 persons in the course of four expeditions. They found that distinct and varied changes take place in the functioning of the circulatory system in the course of acclimation. Over the winter the men developed changes in blood pressure and heart rate, sonorosity of the heart sounds, functional murmurs, shifts in myocardial bioelectrical activity of varying pathological significance, disturbances of myocardial contractility, and changes in the main hemodynamic parameters.

The absolute majority of explorers showed various physiological acclimation changes in the circulatory system of an adaptive nature. However, pathological changes indicative of the onset of cardiovascular disease were common. The relative significance of the pathological changes was by no means the same in the different expeditions. In the Central Antarctic,

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DERYARA, N. R., et al., *Antarktika, Doklady Konissii*, No 11, 1972

the circulatory changes were more pronounced than on the coast. An important means of preventing serious cardiological pathology is strict medical screening of candidates for the expeditions. Further improvement in the living and working conditions of the men is also important.

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USSR

UDC: 669.15-194:621.753.58

SHIATAGIN, O. A., BESEDINA, E. B., SLADKOSHTEYEV, V. T., KHALENSKIY, S. F., Ukrainian  
Scientific-Research Institute of Metals, Kharkov  
"Gas Porosity with Horizontal Continuous Casting of Carbon Steels"  
Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 12,  
1973, pp 39-41.

**Abstract:** Gas porosity is widely developed in horizontal continuous ingots. The reasons for the development of elevated porosity of the axial and upper zones of square ingots are studied. The method of vacuum melting is used to determine the composition of the gas in the pores. Strong deoxidation and degassing of metal during pouring is used to produce billets which, following rolling with various degrees of compression, fully satisfy the requirements of the state standards. The studies showed that the primary reason for the development of porosity during continuous horizontal casting of steel is hydrogen. It is recommended that the metal be degassed during pouring by bubbling an inert gas through the liquid metal in the receiver.

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1/2 029

UNCLASSIFIED

PROCESSING DATE--11 SEP 70

TITLE--EFFECT OF COOLING CONDITIONS ON THE MACROSTRUCTURE OF A BRASS BAR  
DURING HORIZONTAL CONTINUOUS CASTING. -U-

AUTHOR--SLADOSHTEYEV, V.T., SHATAGIN, O.A.

RADZIKHOVSKIY, V.A., BYKOVA,

D.I., KELMAN, L.D.

COUNTRY OF INFO--USSR

SOURCE--TSVET. METAL. 1970, 43(1) 73-5

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--BRASS, METAL CASTING, CRYSTAL STRUCTURE, CRYSTALLIZATION,  
MECHANICAL PROPERTY, METAL COOLING, COOLING RATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0602

CIRC ACCESSION NO--AP0102597

STEP NO--UR/0136/70/043/001/0073/0075

UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0102597

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COOLING CONDITIONS OF A BILLET FORMED IN A CRYSTALLIZER EXERT A DETG. EFFECT ON THE STRUCTURE OF THE CAST METAL. INCREASING THE SOLIDIFICATION RATE RESULTS IN FINER GRAIN SIZE; THIS ENHANCES THE MECH. PROPERTIES. BRASS BILLETS, HORIZONTALLY CONTINUOUSLY CAST, HAVE A DENSE STRUCTURE; NO PORES OR OTHER INTERNAL DEFECTS ARE PRESENT. RESULTS SHOW THAT THE SOLIDIFICATION RATE, WITH OTHER CONDITIONS BEING EQUAL, DEPENDS ON THE SURFACE TEMP. OF THE ROD. THE DEPENDENCE OF THE COOLING (SOLIDIFICATION) RATE ON THE RATE OF WATER FLOW DURING HORIZONTAL CONTINUOUS CASTING OF THE ALLOYS WAS STUDIED. EXPTL. THE COOLING CONDITIONS WERE CHANGED BY CHANGING THE WATER FLOW RATE IN THE CU WATER COOLED JACKET. WITH INCREASING WATER FLOW RATE THE SOLIDIFICATION RATE OF EACH ZONE INCREASES. A SATISFACTORY AGREEMENT WAS OBTAINED BETWEEN EXPTL. AND THEORETICAL DATA.

UNCLASSIFIED

1/2 049

UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--ANISOTROPY OF COLLOIDS AND THE WEIGERT EFFECT IN SODIUM CHLORIDE  
CRYSTALS -U-

AUTHOR--(03)-BEZRUCHKO, V.M., BODRYAGIN, V.I., SHATALOV, A.A.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVRD. TELA 1970, 12(4), 1091-4

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--SODIUM CHLORIDE, ANISOTROPY, RADIATION EFFECT, POLARIZED  
LUMINESCENCE, COLLOID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1370

STEP NO--UR/0181/70/012/004/1091/1094

CIRC ACCESSION NO--AP0128770

UNCLASSIFIED

2/2 049

CIRC ACCESSION NO--AP0128770

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0-. ABSTRACT. TEMP. DEPENDENCE WAS INVESTIGATED OF THE HERSHEL EFFECT ON NA COLLOIDS IN NaCl CRYSTALS. BY IRRADN. WITH POLARIZED LIGHT, A DIRECTED DECOMP. OF THE COLLOIDS WAS OBSD. WHICH TOGETHER WITH THERMAL GROWTH OF THESE COLLOIDS LEADS TO A TRANSFORMATION FROM SPHERICAL TO ELLIPSOIDAL PARTICLES. GOOD AGREEMENT WAS OBTAINED BETWEEN THE EXPTL. AND CALCD. DICHROISM OF THE COLLOIDS.  
FACILITY: KIEV. GOS. UNIV. IM. SHEVCHENKO, KIEV, USSR.

UNCLASSIFIED

USSR

UDC 548.0

BEREZNYAKOVSKIY, Ye. N., and SHATALOV, A. A., Kiev State University imeni T. G.  
Shevchenko

"Photoconductivity and Conduction in Photochemical Transformation of F-Centers  
in Heated Potassium Chloride Crystals"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Fizika, No 7, 1970, pp 87-93

Abstract: The article describes results of a study of the electrical conductivity and photoconductivity of colored KCl crystals during the photochemical transformation of F-centers into X-centers, as well as during the thermal breakdown of the latter. Potassium chloride single crystals grown from the melt by the Kyropoulos method were used for the study. There was found to be a correlation between the time curves for photoconductivity and the absorption coefficient in the F-band maximum during the course of the photochemical reaction. The results indicate that the photochemical transformation of F-centers into X-centers is due to excitation of F-center electrons into the conduction band, which fact rules out the possibility of using a monomolecular reaction to explain the transformation. The photochemical transformation of F-centers into X-centers is accompanied by an increase in the dark ionic conduction of the crystal, which fact confirms the ionic mechanism of X-center formation. The authors intend to make a detailed study of the influence of impurities in subsequent investigations.

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USSR

UDC 621.396.69:621.319.4

LAVROVA, N. N., KHOVANTSEVA, D. A., CHERNYKH, M. A., SHATALOV, A. Ya.  
"Anodizing Aluminum Foil in Citrate Electrolytes"

Elektron. tekhnika. Nauchno-tekh. sb. Radiodetali (Electronic Technology).  
Scientific and Technical Collection. Radio Components), 1970, vyp. 1 (18),  
pp 35-41 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V349)

Translation: The authors give the results of a study of the principles governing formation of pure aluminum foil in citrate electrolytes. The rate of aluminum oxidation in aqueous solutions of citric acid is independent of the concentration of acid (0.03-2%) and the pH of the solution (3.5-6.0). An increase in electrolyte temperature reduces the rate of oxidation. The current efficiency at 20°C is 95%, and decreases to 85% at 90°C as a consequence of chemical dissolution of the film during oxidation. Citric acid of 0.2% concentration with the addition of ammonia (25%) to a pH value in the range of 4-6 can be recommended for anodizing aluminum at average voltages of up to 300 V and current densities of 5-10 mA/cm<sup>2</sup> (for smooth foil) and 20 mA/cm<sup>2</sup> (for etched foil). Bibliography of 8 titles.

Ye. M.  
1/1

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USSR

UDC 541.13

ALYMOVA, A. T., MELESHKO, V. P., and SHATALOV, A. Ya.

"Problem of the Concentration Dependence of the Electrical Conductivity of Ion-Exchange Resins"

Moscow, Doklady Akademii Nauk SSR, Vol 196, No 4, 1971, pp 840-843

Abstract: The problem of quantitative calculation of the concentration dependence of the electrical conductivity of ion exchange resins is considered analytically and experimentally in this paper. An equation for this relation is obtained in the form

$$\bar{\chi}(C) = \bar{\chi}(\infty) C^\alpha,$$

or

$$\chi(C) = \bar{\chi}(\infty) \exp(-\beta/C).$$

where the constants  $\alpha$  and  $\beta$  can be found graphically by data obtained from measuring the electrical conductivity of the given ion-exchange resin. Measurements were performed using cation-exchange resins KU-2 and KU-2P and anion-exchange resins AV-17 and AV-17p with varying contents of crosslink-forming DVB and various acids and bases. The checks were made for a limited concentration range of the external solution from 0.01 N to 0.5 N. A table of 1/2

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ALYMOVA, A. T., et al, Doklady Akademii Nauk SSR, Vol 196, No 4, 1971, pp  
840-843

values of the constant (C) is presented for the mentioned cation-exchange and anion-exchange resins and Zerolite. The mechanism of variation of the electrical conductivity is discussed.

2/2

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1/2 014 UNCLASSIFIED PROCESSING DATE--16 OCT 70  
TITLE--TEMPERATURE DEPENDENCE OF A THERMOGALVANIC CURRENT -U-  
AUTHOR--(03)-BELCHINSKAYA, L.I., KALUZHINA, S.A., SHATALOV, A.YA.  
COUNTRY OF INFO--USSR  
SOURCE--ELEKTROKHIMIYA 1970, 6(2), 228-30  
DATE PUBLISHED-----70

S  
SUBJECT AREAS--ENERGY CONVERSION (NON-PROPELLIVE), CHEMISTRY  
TOPIC TAGS--TEMPERATURE DEPENDENCE, ELECTROLYTIC CELL, ELECTRIC CURRENT,  
BATTERY ELECTRODE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1990/1759

STEP NO--UR/0364/70/006/002/0228/0230

CIRC ACCESSION NO--A00109720  
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0109720

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CURRENT (I) OF GALVANIC CELLS OF VERY DIFFERENT TYPE, AT UNCHANGED NATURE OF METAL AND ELECTROLYTE COMPN., DEPENDS ONLY ON THE TEMP. DIFFERENCE BETWEEN THE HOT AND COLD ELECTRODES, I.E.: I EQUALS CONST. TIMES DELTA T. THIS RELATION WAS CONFIRMED BY EXPTL. DATA REGARDING SOME THERMOGALVANIC COUPLES WITH THE FOLLOWING ELECTRODES: CU, OR CD OR FE, IN 0.1 N H<sub>2</sub>S<sub>2</sub>O<sub>8</sub> SO<sub>4</sub>H<sub>2</sub>O PLUS 0.9 N Na<sub>2</sub>S<sub>2</sub>O<sub>8</sub>; CU IN 0.1 N H<sub>2</sub>S<sub>2</sub>O<sub>8</sub> SO<sub>4</sub>H<sub>2</sub>O PLUS 0.9 N CuSO<sub>4</sub> SO<sub>4</sub>H<sub>2</sub>O; PT IN 0.01 N K<sub>2</sub>S<sub>2</sub>O<sub>8</sub> Fe(CN)<sub>6</sub> SO<sub>4</sub>H<sub>2</sub>O PLUS 0.09 N K<sub>2</sub>S<sub>2</sub>O<sub>8</sub> Fe(CN)<sub>6</sub> SO<sub>4</sub>H<sub>2</sub>O. FACILITY: VORONEZH. GOS. UNIV., VORONEZH, USSR.

UNCLASSIFIED

1/2 042 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--EFFECT OF INTENSIVE NOISE AND NEUROPSYCHIC TENSION ON THE LEVEL OF  
ARTERIAL PRESSURE AND EXTENT OF HYPERTENSIVE VASCULAR DISEASE -U-  
AUTHOR--(021-SHATALOV, N.N., MUROV, M.A.)

COUNTRY OF INFO--USSR

SOURCE--KLINICHESKAYA MEDITSINA, 1970, NR 3, PP 70-73

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ACOUSTIC NOISE, NEUROPSYCHIATRY, PRESSURE, BLOOD PRESSURE,  
HYPERTENSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3007/1375

STEP NO--UR/0497/70/000/003/0070/0073

CIRC ACCESSION NO--AP0136731

UNCLASSIFIED

2/2 042

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136731

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THREE GROUPS OF PERSONS SUBJECTED EITHER TO HIGH INTENSITY NOISE (1275 MACHINISTS), OR TO NEUROPSYCHIC TENSION (1172 SCIENTISTS), OR TO BOTH (339 ENGINE TESTING MECHANICS) WERE STUDIED TO ESTABLISH THE EFFECT OF EITHER OR BOTH OF THE ABOVE FACTORS ON THE STATE OF ARTERIAL PRESSURE. THE STUDY SHOWED THAT IN PERSONS WORKING UNDER THE CONDITIONS OF NOISE OR TENSION THE LEVEL OF THE ARTERIAL PRESSURE AND INCIDENCE OF HYPERTENSIVE DISEASE RISE. THE EXTENT OF HYPERTENSIVE VASCULAR DISEASE IN WORKERS OF SO CALLED "NOISY OCCUPATIONS" IS SIMILAR TO THAT OF SCIENTISTS OF SIMILAR AGE GROUPS. THE COMBINED EFFECT OF NOISE AND NEUROPSYCHIC TENSION PROVED TO BE GREATER THAN THAT OF INDIVIDUAL FACTORS, INCREASING THE INCIDENCE OF HYPERTENSIVE VASCULAR DISEASE CONSIDERABLY. THE DATA OBTAINED AS A RESULT OF OBSERVATION OF THE ABOVE THREE GROUPS WERE COMPARED WITH THE DATA RECEIVED FOR A CONTROL GROUP, I.E., A GROUP OF LABORATORY WORKERS AND OTHER SKILLED WORKERS NOT SUBJECTED TO EITHER NOISE OR NEUROPSYCHIC TENSION. THE RESULTS OF SUCH COMPARISON, PRESENTED IN TABULAR FORM, INDICATE THAT FOR BOTH MALES AND FEMALES OF ALL AGE GROUPS, THE ARTERIAL PRESSURE AND THE INCIDENCE OF HYPERTENSIVE DISEASE WAS LOWER IN THE CONTROL GROUP THAN IN ANY OF THE ABOVE THREE GROUPS.

UNCLASSIFIED

Acc. Nr.: AN0047730

S  
Ref. Code: UR 9002

AUTHORS-- SHATALOV, VLADIMIR, AND YELISEYEV, ALEKSEY, ASTRO-  
NAUTS OF THE SOVIET UNION

TITLE-- THE FUTURE OF ASTRONAUTICS

NEWSPAPER-- GUDOK, APRIL 12, 1970, P 3, COLS 1-7

ABSTRACT-- IN AN INTERVIEW GRANTED TO A CORRESPONDENT OF THE  
NEWS AGENCY, SHATALOV OUTLINED THE FOLLOWING TRENDS IN SPACE EXPLOR-  
ATIONS--

/1/ PRACTICAL USES OF UNMANNED SPACE VEHICLES IN THE INTERESTS OF  
NATIONAL ECONOMY

/2/ USING SPACE VEHICLES FOR THE EXPLORATION OF THE NEAR-THE-  
EARTH AND NEAR-THE-SUN SPACE, PLANETS OF THE SOLAR SYSTEM,  
ETC.

L  
Reel/Frame

19791335

12

AN0047730

13/ MANNED ORBITAL FLIGHTS AND THE DEVELOPMENT OF LONG-TERM  
ORBITAL STATIONS AND BASES FOR LONG-DISTANCE SPACE FLIGHTS  
14/ MANNED FLIGHTS TO STUDY THE MOON AND PLANETS.  
SHATALOV ALSO GIVES A DESCRIPTION OF A SPACE STATION - "A BIT OF  
FANTASY", USING HIS WORDS.  
YELISEYEV AGREED WITH SHATALOV'S PROGNOSTICATIONS EXCEPT ON THE  
"FANTASY" OF THE SPACE STATIONS. YELISEYEV THINKS THAT SPACE  
STATIONS ARE QUITE WITHIN THE REACH.

2/2  
19791336

Acc. Nr: AP0043757

Ref. Code: UR 0050

PRIMARY SOURCE: Meteorologiya i Gidrologiya, 1970, Nr 3,  
PP 65-71

STRUCTURE OF CLOUDS AT THE CENTRE OF THE CYCLONE  
FROM PHOTOGRAPHS MADE FROM THE SPACECRAFT «SOYUZ-4»

Bugayev, V. A.; Popova, T. P.; Shatalov, V. A.

Photographs of cloud cover obtained from the spacecraft «Soyuz-4» on January 15, 1969 are analysed. It is shown that in a deep occluded cyclone the cloudiness does not fill up the whole space. The so-called «curved edge of the occlusion» consists of separate cloud spirals terminating in independent mesovortices.

REEL/FRAME  
19770163

*Yd*  
*12*

USSR

Semiconductor Technology

UDC:621.922.4.079

SHATALOV, V. F.

"Polishing of Silicon and Germanium Plates with a Tool with Diamond Filler"

Moscow, Stanki i Instrument, No 9, Sep 73, pp 27-28

Abstract: Fine-grain discs made of wood binder (natural birch) charged with diamond grains were used in an attempt to increase the effectiveness of polishing of silicon and germanium plates used in the production of semiconductors. Polishing of silicon plates, with cooling by de-ionized water, was found to increase surface smoothness while decreasing the thickness of the defect layer. The coefficient of friction during polishing and disc life were also studied. The following mode is recommended: tool speed 35-40 m/sec, feed 1 m/min, maximum cutting depth for silicon 5  $\mu$  per pass, for germanium 7  $\mu$  per pass.

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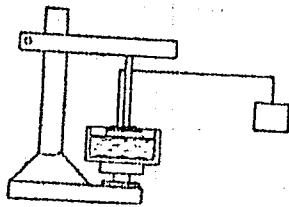
USSR

UDC: 531.715.2 531.717.53

SHATALOV, V. F., KOPYTIN, A. M., PONARIN, N. S., KOMISSAROV, V. T.  
"A Method of Determining the Extent of a Destroyed Layer in Semiconductor  
Plates"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,  
No 7, Mar 72, Author's Certificate No 329374, Division G, filed 7 Apr 70,  
published 9 Feb 72, p 151

Translation: This Author's Certificate introduces a method of determining the extent of a destroyed layer in semiconductor plates. The procedure consists in etching the surface of the plate in an electrolyte and measuring the parameters of plates. As a distinguishing feature of the patent, the method is designed for increased inspection productivity. A strain gauge is used for determining the greatest deformation of the plate during the etching process.



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USSR

TUTORSKII, I. A., et al., Kauchuk i Rezina, No 11, 1973, pp 21-23

explain these effects. It was also found that G values are independent of the amount of styrene in the copolymer, indicating that styrene does not protect polybutadiene from radiation effects.

2/2

- 59 -

Acc. Nr:

AP0049791 Abstracting Service:  
CHEMICAL ABST. 5-70Ref. Code:  
UR 0138

101586n Molecular-weight distribution of cis-1,4-polybutadiene in relation to its preparation conditions. Shatalev, V. P.; Grigor'eva, L. A.; Kistereva, A. E.; Grigor'ev, V. B.; Pozina, E. N. (Voronezh. Fizich. Usses. Nauch.-Issled. Inst. Sib. Rauch. im. Lebedeva, Voronezh, USSR). *Rauch. Rezina* 1970, 29(1), 1-3 (Russ.). The mol. wt. distribution of the title polymer (I) dissolved in C<sub>6</sub>H<sub>14</sub> + C<sub>2</sub>H<sub>16</sub> was studied by ultracentrifugation. Increased degree of conversion of butadiene (II) led to a displacement of the mol. wt. distribution curve max. towards the higher mol. wts., but increased polymn. temp. of II caused a shift in the mol. wt. distribution curve max. toward lower mol. wts. The mol. wt. distribution of I depended on the way in which the organoaluminum compd. and Ti halide catalysts were added. Thus, fractional addn. of the 2 catalysts to polymg. II brought about a significant widening in the mol. wt. distribution of I and increased content of low mol. wt. and high mol. wt. fractions. Fractional addn. of II had a favorable effect on polydispersity and improved polymer extrudability.

CKJR

96.

REEL/FRAME  
19801713

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USSR

UDC 547.341.26'118.07

NIFANT'YEV, E. YE., NASONOVSKIY, I. S., LAKKORIN, B. N., SKOROVAROV, D. I.,  
SHATALOV, V. V., Moscow State University imeni M. V. Lomonosov

"A Method of Making Phosphinates"

Moscow, Otkrytiya, Izobreteniya, Primyshlennye Obraztsy, Tovarnyye Znaki,  
No 22, Aug 72, Author's Certificate No 345165 , Div C, filed 23 Nov 70,  
published 14 Jul 72, p 97

Translation: This Author's Certificate introduces: 1. A method of making phosphinates with the distinguishing feature that the process is simplified by reacting the sodium salt of phosphinic acid with an alkyl halides in an inert organic solvent such as methanol in the presence of heating with subsequent isolation of the goal product by conventional methods. 2, A modification of this procedure distinguished by the fact that heating is done to 130-135° C. 3. A modification of the method covered in points 1 and 2 distinguished by the fact that the process is carried out in the presence of a peroxide such as tert-butyl peroxide.

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USSR

UDC 542.61:661.73

IASKORIN, B. N., BUCHIKIN, YE. P., SHATALOV, V. V., and PONOMAREVA, S. I.

"Effect of the Structures of Aromatic Organophosphorus Acids on Their Extraction Properties"

Leningrad, Radiokhimiya, Vol 13, No 6, 1971, pp 809-815

**Abstract:** Extraction constants of U<sup>(VI)</sup> were determined for a series of aromatic organo phosphorus acids (POA) and it has been established that their extraction properties can be described by the equation  $\lg K_{UO_2^{2+}} = 3.40 - 2.06 \sum \sigma \phi$ .

In contrast to aliphatic substituents, whose effect on the acid and extraction properties of POA is determined principally by their inductive effect, the aromatic radicals are capable of a direct conjugation with the phosphorus atom, i.e., the final effect is determined by inductive and mesomeric effects. The substituents may be divided into two groups: 1) C<sub>6</sub>H<sub>5</sub>O-, p-CH<sub>3</sub>C<sub>6</sub>H<sub>4</sub>O-, o-CH<sub>3</sub>C<sub>6</sub>H<sub>4</sub>O-, C<sub>6</sub>H<sub>5</sub>C:C- -- strongly resembling alkoxy radicals in which a strong negative inductive effect is almost completely compensated by a counteracting mesomeric effect; and 2) C<sub>6</sub>H<sub>5</sub>-, C<sub>6</sub>H<sub>5</sub>CH:CH-, C<sub>6</sub>H<sub>5</sub>CH<sub>2</sub>- group, in which the mesomeric effect is dominant. All acids which have an unsaturated  $\pi$ -elect-

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USSR

LASKORIN, B. N., et al., Radiokhimiya, Vol 13, No 6, 1971, pp 809-815

tronic system in their structure --  $C_6H_5^-$ ,  $C_6H_5C=C-$ ,  $C_6H_5O^-$  --- have a higher extractive capability toward  $U^{(VI)}$  than corresponding dialkylphosphoric-phosphinic acids.

2/2

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1/2 015

UNCLASSIFIED

PROCESSING DATE--27NOV70  
PHOSPHINE OXIDES -U-

TITLE--PRINCIPAL RULES FOR URANIUM, EXTRACTION BY  
AUTHOR--(04)-LASKORIN, B.N., SKOROVAROV, D.I., FEDOROVA, L.A., SHATALOV,  
V.V.  
COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. (USSR): 28: 383-8, MAY 1970

DATE PUBLISHED-----70

S

SUBJECT AREAS--MATERIALS

TOPIC TAGS--URANIUM, EXTRACTIVE METALLURGY, ORGANIC OXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3008/0564

STEP NO--UR/0089/70/028/000/0383/0388

CIRC ACCESSION NO--AP0137649

UNCLASSIFIED

2/2 015

CIRC ACCESSION NO--AP0137649

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPENDENCE OF EXTRACTION OF URANIUM FROM HNO<sub>3</sub>, HCl, AND H<sub>2</sub>SO<sub>4</sub> SOLUTIONS BY MONO, DI, AND POLYPHOSPHINE OXIDES OF DIFFERENT STRUCTURE WAS INVESTIGATED. THE LARGEST COEFFICIENTS OF DISTRIBUTION WERE OBSERVED AMONG TRI(ALKYL)PHOSPHINE OXIDES WHEN THE LENGTH OF CHAIN WAS C<sub>8</sub> MINUS C<sub>10</sub>. TRI(ARYL)PHOSPHINE OXIDES WERE FOUND TO HAVE VERY POOR EXTRACTION PROPERTIES. THESE PROPERTIES FOR MIXED DERIVATIVES INCREASED FROM TRI(ARYL) YIELDS DIARYLALKYL YIELDS ARYLDIALKYL. TRI(CYCLOHEXYL)PHOSPHINE OXIDE HAS THE BEST EXTRACTION PROPERTIES. THE OXIDES; COMPLEXES GENERATED WITH URANIUM SULFATE WERE DEFINED. TO DEFINE CHARACTERISTICS OF EXTRACTION PROPERTIES OF PHOSPHINE OXIDES INTERDEPENDENCE BETWEEN PHYSICAL PROPERTIES (VP EQUALS 0) AND DISTRIBUTION COEFFICIENT OF URANIUM WAS INVESTIGATED. THE INFLUENCE OF LENGTH ALKYLENE BRIDGE BETWEEN PHOSPHORUS ATOMS ON URANIUM EXTRACTION WAS INVESTIGATED FOR BIDENTATE PHOSPHINE OXIDES. IT WAS SHOWN THAT COMPOUNDS WITH ETHYLENE BRIDGE HAVE THE LARGEST EXTRACTION PROPERTIES.

UNCLASSIFIED

USSR

UDC:542'61:541'69

LASKORIN B. N., SKOROVAROV, D. I., FEDOROVA, L. A., and  
SHATALOV V. V.

"Basic Regularities of Extraction of Uranium with Phosphine Oxides"

Moscow, Atomnaya Energiya, Vol 28, No 5, May 70, pp 383-388

**Abstract:** The authors studied the influence of changes in the structure of radicals in mono-, di-, and polyphosphine oxides. The results showed that there is a general regularity of increasing extraction properties with the transition from triaryl to trialkyl and tricycloalkyl phosphine oxides. The removal of the electronegative substituent from the phosphorus atom causes an increase in the extraction properties of the phosphine oxides. However, the degree of this increase depends on the type of group introduced. The double bond in the alpha position in phosphine oxide radicals has a significant

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USSR

LASKORIN B. N., SKOROVAROV, D. I., FEDOROVA, L. A., and SHATALOV, V. V., Moscow, Atomnaya Energiya, Vol 28, No 5, May 70, pp 383-388

influence on their extraction properties, decreasing the distribution factor. Further increases in the extraction properties can be achieved by increasing the number of phosphoryl groups in the molecule of the extraction agent. Comparison of the properties of phosphine oxides studied confirms the significant influence of the type of substituent radical (aromatic, alkyl, or alicyclic), then of its structure (benzyl greater than phenyl; octyl greater than cetyl; cyclohexylmethyl less than cyclohexyl). It is also shown that an increase in the number of phosphoryl groups in the phosphine oxide molecule helps to improve the extraction of uranium; the length of the alkylene bridge between the atoms of phosphorus is one of the main factors determining the properties of polyphosphine oxides.

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USSR

UDC 517.955.2

SHATALOV, V. YE., and SHISHMAREV, I. A., Moscow State University imeni M. V. Lomonosov

"Analytical Continuation of Dirichlet Series for Elliptical Boundary Value Problems. II"

Minsk, Differentsial'nyye Uravneniya, Vol. 6, No. 10, Oct 70, pp 1844-1850

Abstract: The problem of finding the eigenfunctions for an elliptical system of  $r$  equations of order  $2m$  with real coefficients is considered:

$$Au = \sum_{|\alpha| < 2m} A_\alpha(x) D_x^\alpha u = -\lambda u \quad (x \in g).$$

$$B_v(x, D) u|_r = \sum_{|k| < r_v} \sum_{l=1} b_{vl}^{(k)} D_x^k u^l = 0, \\ v = 1, 2, \dots, mr, \quad r_v \leq 2m - 1.$$

It is assumed that  $g$  is an open region in  $N$ -dimensional Euclidean space  $P_N$  and

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SHATALOV, V. YE., and SHISHMAREV, I. A., Moscow State University imeni M. V. Lomonosov

that  $\Gamma$  is the boundary of this region;  $\alpha$  is an  $N$ -dimensional vector with natural components. It is shown that under certain conditions the Dirichlet series

$\sum_{v=1}^{\infty} \lambda_v^{-z}$ , converging for  $\operatorname{Re} z > N/2m$  has an analytic continuation  $\phi(z)$  equal to

$$\phi(z) = \frac{C}{z - \frac{N}{2m}} + \psi(z),$$

where  $C = V(g) \left\{ \Gamma \left( \frac{N}{2m} \right) (2\pi)^N \right\}^{-1} \int_{R_N} \exp [Q_{2m}(i\tau)] d\tau,$

and the function  $\psi(z)$  is regular for  $\operatorname{Re} z > N-1/2m$ . The conditions imposed guarantee the presence of a unique self-conjugate expansion in  $L_2$  in  $A$  which has a complete orthonormalized system of eigenfunctions  $\{u_i(x)\}$  corresponding to the eigenvalues  $\{\lambda_i\}$ . It is noted that as a corollary of this theorem one can evaluate the number  $\theta(\lambda)$  of eigenvalues not exceeding  $\lambda$ :

$$\theta(\lambda) = C \lambda^{\frac{N}{2m}} + o(\lambda^{\frac{N}{2m}}),$$

where

$$C = \frac{V(g)}{\Gamma \left( \frac{N}{2m} \right) (2\pi)^N} \int_{R_N} \exp [Q_{2m}(i\tau)] d\tau.$$

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1/2 021

UNCLASSIFIED

PROCESSING DATE--11DEC70

TITLE--ELIMINATION OF SILVER, ANTIMONY, AND IRON IN SILVER PLATING  
ELECTROLYTES -U-

AUTHOR--SHATALOVA, A.A.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB., 1970, 36, (3), 277-278

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--CHEMICAL ANALYSIS, SILVER, ANTIMONY, IRON, ELECTROLYTE,  
SOLVENT EXTRACTION, ORGANIC SOLVENT, PERMANGANATE, METAL PLATING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0943

STEP NO--UR/0032/70/056/003/0277/0278

CIRC ACCESSION NO--APO131528

UNCLASSIFIED

2/2 021

CIRC ACCESSION NO--AP0131528

UNCLASSIFIED

PROCESSING DATE--11DEC70

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. AN ACCELERATED METHOD OF DETERMINING FE, AG, AND SB IN CYANIDE FREE AG PLATING ELECTROLYTES IS PROPOSED. THE FE AND SB ARE EXTRACTED FROM H SUB2 SO SUB4 SOLUTIONS WITH A SOLUTION OF PYRO 2 ETHYLHEXYLPHOSPHORIC ACID IN HEPTANE. THE AG REMAINING IN SOLUTION IS DETERMINED BY TITRATION WITH THIICYANATE. THE SB AND FE ARE REEXTRACTED WITH HCL AND A SOLUTION OF TiCL SUB3 IN H SUB2 SO SUB4 AND DETERMINED BY THE PERMANGANATE METHOD.

UNCLASSIFIED

Organ and Tissue Transplantation

USSR

UDC 576.097

SHATALOVA, I. N., NASTOYASHCHAYA, N. N., ARTSIMOVICH, N. G., and SERGEL',  
O. S., Scientific Research Laboratory of Experimental Immunobiology, Academy  
of Medical Sciences USSR, Moscow

"Changes in the Peripheral Blood of Mice Upon Specific and Combined Sup-  
pression of Transplantation Immunity"

Moscow, Doklady Akademii Nauk SSSR, Vol 210, No 6, 1973, pp 1,450-1,452

**Abstract:** In experiments in which allografting of skin patches to mice was performed, immunization of the recipients was carried out with unspecific immunosuppressors (antilymphocyte serum and cyclophosphamide) and with a specific antigen (viable cells of the spleen of donor mice). The antilymphocyte serum was obtained by immunizing rabbits with lymphoid cells of the mesenteric lymph nodes of mice. Suppression of the transplantation immunity with the non-specific immunosuppressors (cyclophosphamide alone or in combination with antilymphocyte serum) was accompanied as a rule by leukopenia and particularly lymphocytopenia. On the other hand, induction of immunological tolerance by applying the specific antigen or by treating the recipients with the antigen in combination with the unspecific

USSR

SHATALOVA, I. N., et al., Doklady Akademii Nauk SSSR, Vol 210, No 6, 1973,  
pp 1,450-1,452

immunosuppressors resulted in a marked extension of the time of survival of  
the transplanted skin without significant changes in the composition of the  
blood.

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USSR

UDC 612.41.014.46:615.275.2

KRIVSKIY, I. L., KHUNDANOV, L. L., and SHATALOVA, I. N., University of Friendship Among Peoples imeni Lumumba and Institute of Surgery imeni Vishnevskiy, Moscow

"Comparison of the Effects of Some Immunosuppressants on Some Hematopoietic Organs"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 9, 1972,  
pp 47-52

**Abstract:** Changes in lymph nodes, bone marrow, and peripheral blood of dogs resulting from treatment either with a combination of the antimetabolite imuran and the antibiotic aurantin (an analog of actinomycin C) or with antilymphocyte serum were compared. The combined use of imuran and aurantin had a much greater toxic effect on lymphopoiesis and myelopoiesis than did the serum. These drugs sharply reduced the number of all cellular forms in lymph nodes and bone marrow, especially the undifferentiated ones, but lymphopenia in the peripheral blood was comparatively mild. Antilymphocyte serum, on the other hand, decreased the number of only the small lymphocytes in the lymph nodes while inducing marked lymphopenia in the peripheral blood.

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Reliability Theory

USSR

UDC 621.382:621.362

YEFIMOV, V.A., IUFANOV, B.S., SHATALOVA, N.F.

"Problem Of Reliability Of Semiconductor Thermoelectric Devices"

Kholodil'n. tekhn. i tekhnol. Resp. mezhev. nauchno-tekhn. sb. (Cooler Technics And Technology. Republic Interdepartmental Scientific-Technical Collection), 1970, No 9, pp 3-5 (from RZh--Elektronika i yeye primenenije, No 11, November 1970, Abstract No 11B175)

Translation: Various types of thermoelectric devices are considered and their qualitative reliability indices are presented. The area of applicability of the exponential law of the probability density distribution of rejections is described for computations on the devices mentioned. On the basis of an analysis of the quantitative reliability indices, and the design and technological features of the devices, a series of recommendations are given with respect to an increase of the reliability and quality of the devices in question. Rejections are considered which took place during tests and exploitation of the devices, and the most common of them are considered with the object of demonstrating the causes for their occurrence. 4 ref. Summary.

1/1

USSR

UDC 519.217

SHATASHVILI, A. D.

"Optimal Extrapolation and Filtration for One Class of Random Processes. II.  
4-6."

Teoriya Veroyatnostey i Mat. Statist. Mezhved. Nauch. Sb., [Theory of Probabilities and Mathematical Statistics. Independent Scientific Collection], 1970, No 3, pp 211-231, (Translated from Referativnyy Zhurnal Kibernetika, No 5, 1971, Abstract No. 5V117).

Translation: For Part I see RZHMAT. 1971, 2V102.

Investigations of the problem of the densities of measures are continued, and conditions are concluded for absolute continuity of measures generated by the solutions of multidimensional stochastic differential equations with Gaussian perturbations and a separated linear portion relative to measures generated by the solutions of the corresponding linear differential equations. The corresponding densities of measures are written in explicit form. The general formulas for extrapolation and filtration of random measures, produced earlier, are used to solve problems of extrapolation and filtration for functionals from the solutions of stochastic differential equations and expressions are written in explicit form for the optimal prediction and filter. In the case when the differential equations contain low nonlinearity, these expressions for prediction and filter are expanded with respect to powers of a small parameter.

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USSR

BORISOV, N. K., SHATAYEV, R. G.

UDC 539.376+532.135

"Nonsteady Creep of Thin-Walled Structures of Variable Cross Section"  
Tr. Kazan. aviats. in-ta (Works of Kazan' Aviation Institute), 1972, No. 145,  
pp 33-40 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V526)

Translation: The problem of determining the stress-deformation state of thin-walled framed structures such as a wing and fuselage of an aircraft under non-steady creep conditions is discussed. It is proposed that the skin works only on the shift and the contour of the transverse cross sections does not change during deformation. The solution reduces to integration of a system of ordinary differential equations with variable coefficients in which the creep deformations are assigned to the load terms. A step method is applied to find the creep deformations. The system of differential equations is solved by a numerical method using the apparatus of integrating matrices. The proposed method is illustrated by numerical examples. 7 ref. Authors' abstract.

1/1

USSR

SHATAYEV, V. G.

UDC 539.374:629.7.025

"Creep Estimation of a Thinwall Wing on the Basis of a Plate Analogy"  
Kazan, Aviatsionaya Tekhnika, No 4, 1972, pp 67-72

**Abstract:** The problem of determining the tension-deformational condition of a tail group wing with a thin sheath, under conditions of irregular creep was considered. An analogy with a rigid plate was used for estimation. The solution led to a numerical estimation of the linear elastic wing from the given load and certain hypothetical force systems, which determine the value of the accumulated deformational creep. An integrating matrix was used for estimating a five-longeron wing of constant cross-section. The results agreed with those found by other methods.

1/1

- 2 -

USSR

UDC 621.375.82

(2)

KRYUKOV, P. G., MATVEYETS, YU. A., SENATSKIY, YU. V., FEDOSIMOV, A. I.,  
CHEKALIN, S. V., and SHATEBERASHVILI, O. B.

"On Mechanisms for Radiation Energy and Power Limitation During the Amplification of Ultrashort Pulses in Neodymium Glass Lasers"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No 2(14), Moscow, "Sov. Radio," 1973, pp 102-105 (English summary) (from RZh-Fizika, No 10, Oct 73, Abstract No 10D334 from authors' abstract)

Translation: It is shown that a limitation of the energy and power of ultrashort pulses during amplification in Nd glass lasers sets in as a result of the nonlinear interaction of the laser radiation with the optical medium of the laser itself. Emerging as limitation mechanisms here are breakdowns due to self-focusing in the case of the propagation of light beams close to parallel through the amplifier, and spectrum broadening and radiation scattering in the case of divergent beams.

1/1

USSR

UDC: None

KRYUKOV, P. G., MATVEYETS, Yu. A., CHEKALIN, S. V., and SHATBERASH-  
VILLI, O. B.

"Forming Ultrashort Laser Pulses With a Two-Component Medium"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy  
Fiziki, vol 16, No 3, 1972, pp 117-120

**Abstract:** The purpose of this letter is to investigate the possibility of forming single ultrashort laser pulses using a medium which amplifies and is a nonlinear absorber with fast relaxation time in the light-transmission state. Since such a medium is absorbent for weak signals and amplifying for strong, powerful amplification, discrimination is exerted on the input pulse. If the relaxation time for the absorber is low enough, the already short pulse derived from a laser with autosynchronization can be made even shorter. A diagram of the experimental arrangement for this investigation is given and comparison diagrams of the pulse before and after passage through the two-component medium are shown. Associated with the P. N. Lebedev Physics Institute of the USSR Academy of Sciences, the authors express their gratitude to S. A. Churilova, A. N. Zherikhin, and Ye. V. Kurganova for their assistance with the experimental work.

1/1

USSR

UDC 541.127<sup>1</sup>546.11.02,547.1'13'118

YAKUSHIN, F. S., SETKINA, V. N., KISLYAKOVA, N. V., KURSAMOV, D. N., and  
SHATEVSKII, A. I., Physico-Chemical Institute imeni L. Ya. Karpov, and  
Institute of Metallorganic Compounds, Academy of Sciences USSR

"Kinetic Isotope Effect of Hydrogen Exchange in Cyclopentadienylmanganeseacetylcarbonyl and Cyclopentadienylmanganesedicarbonyltriphosphine phosphine"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 2, Feb 72,  
pp 316-322

**Abstract:** Experimental results are reported on the determination of the kinetic isotope effect (KIE) of hydrogen exchange in cyclopentadienylmanganeseacetylcarbonyl (CMF) and cyclopentadienylmanganesedicarbonyltriphosphine (CMDP). In many reactions CMF behaves like benzene. Introduction of an alkyl group lowers the exchange rate of hydrogen. Determinations of KIE of hydrogen exchange with acids were carried out under similar conditions for CMF, CMDP, benzene derivatives and ferrocene, and it was shown that both in the CMF and CMDP it occurs by the same mechanism as in case of aromatic compounds. On the other hand, hydrogen isotope exchange if AIP catalyzed by basic agents has a protophilic mechanism, analogously to ferrocene, the slowest step being the breaking of the C-H bond by the base.

1/1

USSR

UDC 547.241

PETROV, E. S., TSVETKOV, Ye. N., KABACHNIK, M. I. and SHATENSHTEYN, A. I.,  
Institute of Physical Chemistry imeni L. Ya. Karpov and Institute of Elemento-  
Organic Compounds, Academy of Science SSSR

"Equilibrium CH-Acidity of Some Phosphine Oxides"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 5, May 1971, p 1172

**Abstract:** In studying the equilibrium CH-acidity of organophosphorus compounds, spectrophotometry was used to determine the equilibrium constants ( $K$ ) at  $25^\circ$  for the following reactions conducted in diethylene glycol solutions: diphenylbenzylphosphine oxide (I) with fluorenyl lithium, and diphenylmethyl phosphine oxide (II) and phenyldimethyl phosphine oxide (III) with triphenylmethyl lithium. The  $pK_a$  was calculated from this data.

	$K$	$pK_a$
$(C_6H_5)_2P(O)CH_2C_6H_5$ (I)	$2.1 \pm 0.3$ (7)	22.5
$(C_6H_5)_2P(O)CH_3$ (II)	$14 \pm 10$ (8)	31.3
$C_6H_5P(O)(CH_3)_2$ (III)	$6 \pm 0.6$ (4)	31.7

1/2

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USSR

PETROV, E. S., et al., Zhurnal Obshchey Khimii, Vol 41, No 5, May 1971, p 1172

A comparison of the acidities (I and II) with those of toluene and methane shows that the acidifying effect of the diphenyl phosphinoxy group is 9-10  $pK_a$  units. A comparison of II and III shows that a substituent on the phosphorus atom ( $CH_3^-$  and  $C_6H_5^-$ ), has little effect.

2/2

USSR

7-3  
UDC 547.558.1

YAKOVLEVA, YE. A., ISAYEVA, G. G., MAKHANIEVANOV, M. M., ZUBROVA, A. N.,  
TSVERKOV, YE. N., KARICHNIK, M. I., and SHATENSHTEIN, A. I., <sup>Zubrova, A. N.</sup>  
Institute imeni L. Ya. Karpov and Institute of Organometallic Compounds,  
Academy of Sciences USSR

"Partial Rate Factors for Protophilic Deuteroexchange of Dimethylphosphine  
with Liquid Ammonia under Potassium Amide Catalysis"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 7, Jul 70, pp 1626-1631

Abstract: The authors undertook to determine the partial rate factors for deuteroexchange with liquid ammonia ( $KNH_2$  catalyst, 25°) for all ring positions of dimethylphosphine. The deuterated dimethylphosphines were synthesized by the reaction of the corresponding organomagnesium compounds with dimethylphosphinic chloride and subsequent reduction of the resultant oxides with silicachloroform. The structure of the isomers was confirmed by IR spectra. The partial rate factors were calculated on the basis of measurements of the de deuteration reaction rate constants for dimethyl-*o-m*-, and *p*-deutero phenylphosphine.

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USSR

YAKOVLEVA, Ye. A., et al., Zhurnal Obrshchey Khimii, Vol 40, No 7, Jul 70,  
pp 1626-1631

Approximate comparative data were also obtained on the protophilic deuteriation rates for dimethyl-m- and p-trideuterotolylphosphines. The results indicated that the  $(CH_3)_2P$  group was an electron acceptor in the reaction of protophilic isotopic hydrogen exchange with a strong base.

2/2

USSR

UDC 547.26'118

MARCHENKO, V. A., YAKUSHIN, F. S., TSVETKOV, YE. N., KABACHNIK, M. I., and  
SHATENSHTEYN, A. I.

"Effect of Solvating Organophosphorus Additives on the Kinetics of Protophilic  
Deutero Metabolism"

Leningrad, Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 3-9

**Abstract:** A study was made of the kinetics of the reaction of deuterohydrogen metabolism of 9-D-fluorene with tertiarybutyl alcohol catalyzed with tertiary lithium butylate in the presence of additives of organophosphorus compounds with different substitutions on the phosphorus atom.

An analysis of the relation between the enthalpy and entropy of the activation of the reaction indicates the presence of two reaction series corresponding to different mechanisms of solvation of the alcoholate cation by additives with one and two electron donor centers. The efficiency of the organophosphorus compounds as sulfating agents in the given reaction depends to a great extent on the spatial factors. A linear relation was found between the values of  $\lg k$  ( $25^\circ$ ) and the values of  $H$  defined for the same solutions with which the kinetic measurements were performed. The indicator was CH-acid similar with respect to structure to the substrate of the deutero-hydrogen exchange reaction.

1/1

1/2 010  
TITLE--CONTACTLESS PROBE FOR CONTROLLING THE WOBBLE OF COMMUTATOR SURFACES  
-U-  
AUTHOR-(04)-DENISOV, V.A., SHATERNIKOV, V.E., KULIKOV, V.V., LELEKOV, P.A.  
COUNTRY OF INFO--USSR  
S  
SOURCE--ELEKTROMEKHANIKA, FEB. 1970, P. 228-230  
DATE PUBLISHED-----70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--ELECTRONIC COMMUTATOR, ELECTRON PROBE, TRANSISTORIZED  
OSCILLATOR, OSCILLOSCOPE/(U) 750KHZ OSCILLATOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1996/1459

STEP NO--UR/0144/70/000/000/0228/0230

CIRC ACCESSION NO--AP0118448

UNCLASSIFIED

2/2 010

CIRC ACCESSION NO--AP0118448

UNCLASSIFIED

PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF THE DESIGN, CIRCUIT, AND OPERATION OF A PISTOL GRIP PROBE FOR TESTING THE Wobble AND ASYMMETRY OF INDIVIDUAL SEGMENTS IN RING COMMUTATORS OF ELECTRIC MOTORS. THE DEVICE IS TRANSISTORIZED AND FULLY SELF CONTAINED (INCLUDING THE POWER SOURCE) EXCEPT FOR THE OSCILLOSCOPE READOUT. OPERATION INVOLVES THE USE OF A TIP MOUNTED, TOROIDAL INDUCTIVE SENSOR ELEMENT WHOSE COIL IS CONNECTED IN A TANK CIRCUIT FED BY A 750-KHZ CRYSTAL CONTROLLED OSCILLATOR. THIS TIP IS BROUGHT IN CLOSE PROXIMITY TO THE ROTATING COMMUTATOR RING WHOSE INDIVIDUAL SEGMENT SURFACES AFFECT THE TANK CIRCUIT AS THEY PASS NEAR THE TOROIDAL PICKUP ELEMENT. AS A RESULT, THE VOLTAGE IN THE TANK CIRCUIT BECOMES PULSE MODULATED, PASSES THROUGH A PROCESSING CIRCUIT, AND IS FED BY AN OUTPUT CABLE TO AN OSCILLOSCOPE.

UNCLASSIFIED

USSR

UDC 577.174.5

POKROVSKIY, A. A., KUSHMANOVA, O. D., SHATERNIKOVA, I. S., MIRZOYEV, B. M. and LASHNEVA, N. V., Chair of Biochemistry, Second Moscow Medical Institute imeni N. I. Pirogov, and Scientific Research Institute of Civil Aviation

"Data on the Functional State of the Adrenal Cortex during Experimental Insomnia in Rats"

Kiev, Ukrainskiy Biokhimicheskiy Zhurnal, Vol 42, No 3, 1970, pp 353-356

**Abstract:** Experimental insomnia was evoked in rats by placing them in a slowly rotating drum. During the first day, more than a threefold increase in 11-hydroxycorticosteroid content was observed in blood plasma and cholesterol in the adrenals was lowered by 50% and total lipids by 20%. On the fourth day the content of 11-hydroxycorticosteroids dropped by 33% in comparison to the original level, while cholesterol and total lipids were depressed 78% and 50%, respectively. The content of ascorbic acid in adrenal tissue decreased mainly at the expense of its reduced form, while in the blood serum the concentration increased, particularly that of dehydroascorbic acid. Animals evidently succumb in experimental insomnia because of insufficient synthesis of steroid hormones by the adrenals, which in turn may be the result of a breakdown in cholesterol synthesis and a low level of the reduced form of ascorbic acid.

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USSR

UDC 666.1101.621.378.324

SHATILOV, A. V., GUSEV, G. P., and DVORNIKOV, G. D.

"Self-Focusing Thresholds of Nanosecond-Long Radiation in Optical Glass"

Leningrad, Optiko-Mekhanicheskaya Promyshlennost', No 4, Apr 72, pp 18-20

**Abstract:** Experimental threshold self-focusing capacities are compared, for 19 kinds of Soviet-produced optical glass, to theoretical threshold values computed on the basis of a model of strict self-focusing, for a radiation duration of  $10^{-7}$  --  $10^{-8}$  seconds. In the measurement procedure, the relationship of the self-focusing threshold to the size of the irradiated area is taken into account. For highly homogeneous types of glass the experimental results coincide with the values of the model, but cases are possible in which account must be taken of absorption. The principles dealt with do not extend to the case of durations of greater length. One table, 11 references.

1/1

USSR

SHATILOV, N. F.

UDC: 51

"Essential Features in Brief of a Dynamic Model of the Intersectoral Balance"

V sb. Algoritmy i programmy realizatsii narodnokhoz. modelley (Algorithms and Programs for Realization of National Economic Models--collection of works), Novosibirsk, 1971, pp 5-9 (from RZh-Kibernetika, No 5, May 72, Abstract No 5V434)

[No abstract]

1/1

USSR

UDC 629.735.764.5:621.316.721(788.8)

SAGALOVSKIY, V. I., SHATILOV, V. V.

"An Angular Current Regulator"

USSR Author's Certificate No 251061, Filed 29 Jan 68, Published 19 Feb 70 (from  
RZh-Electrotehnika i energetika, No 9, Sep 70, Abstract No 91.216 P)

Translation: This author's certificate introduces a device for controlling a DC electric motor. Existing angular current regulators have a zone of hysteresis in the region of small magnet gaps. This zone of insensitivity is eliminated in the proposed angular current regulator by using an additional winding which is connected to the collector of a transistor whose emitter-base circuit is connected in the diagonal of a bridge comprised of the excitation winding of the electric motor, the angle column of the regulator and a divider. The angle column is connected in series with the excitation winding of the electric motor, and the control winding of the angular current regulator is connected in series with the armature of the electric motor. To select the amplitude of the regulating current, there is a bias winding whose bias voltage is directed counter to that of the control winding. Connected in series with this winding is an adjustable resistor whose value determines the current strength. The bias voltage of the limit winding which eliminates the zone of insensitivity is directed counter

1/2

USSR

Coatings

UDC 620.191:621.793:669.017

~~SHATTINSKIY, V. E.~~, ZBOZHINAYA, O. M., Institute of Physico Mechanics, Academy  
of Sciences UkrSSR, L'vov

"Saturation of 1Kh18N9T Steel with Beryllium and Corrosion Resistance of  
Coatings in a Lithium Melt"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 8, No 5, 1972, pp 59-62.

**Abstract:** In order to increase the heat resistance and oxidation resistance of steel products, their surfaces are sometimes saturated with beryllium. This work is dedicated to the study of the possibility of producing beryllium coatings on 1Kh18N9T steel in a liquid metal bath using an intermediate transport melt of Ca, and also the study of the kinetics and establishment of optimal modes of saturation by this method; the corrosion resistance of beryllium coatings in a lithium melt was also determined. The method was found to produce good coatings, protecting 1Kh18N9T steel from corrosion in lithium; however, the structure of the coatings was unstable, resulting in variations in properties (microhardness, surface smoothness) and "re-absorption" with time.

1/1

USSR

UDC: 620.17

SHATINSKIY, V. F., GARLINSKIY, R. N., and KRAVCHUK, O. I.

"The Apparatus for Tensile Tests of Metals and Alloys at Elevated Temperatures and Extra-High Vacuum"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 7, No 5,  
1971, pp 66-68

**Abstract:** The apparatus for testing specimens for tensile strength and creep under vacuum of up to  $10^{-10}$  mm of mercury and temperatures up to  $1200^{\circ}\text{C}$  is described.

This apparatus consists of an inner and an outer casing. The inner casing is 300 mm diameter, 700 mm long. The inner casing is evacuated to  $10^{-6}$  to  $10^{-12}$  mm Hg by means of a mechanical pump, two diffusion pumps and a sorption pump in series. The space between the two casings is evacuated to  $10^{-4}$  mm Hg. The specimen is located in the inner chamber and is connected to two

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USSR

SHATINSKIY, V. F., et al, *Fiziko-Khimicheskaya Mekhanika Materialov*,  
Vol 7, No 5, 1971, pp 66-68

water cooled steel tension bars. It is heated by an electric heater. These bars are sealed to the walls by means of stainless steel bellows so as to avoid friction. All other mechanical penetrations are sealed by metallic packing. Copper gaskets seal the bolted joints. Electric penetration are sealed by metal-ceramic insulators.

Removable heads are provided on both casings for accessibility to the inner chamber.

This apparatus is used for tests of strength and creep when the surface effects of corrosion and diffusion have to be eliminated.

2/2

- 154 -

USSR

UDC 620.193.57

SHATINSKIY, V. F., SHTYKALO, I. G., ZAMORA, M. F., BOLOBOSOVA, V. V., and  
ZBOZHNAIA, O. M., Physicomechanical Institute, Academy of Sciences Ukrainian  
SSR, Lvov, and Lvov Polytechnical Institute

"Effect of Aging EI437B Alloy on Its Corrosion in Lithium"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 9, No 6, 1973, pp 46-49

**Abstract:** The effect of the unstable structure of alloy EI437B (775 Ni, 18-20% Cr), produced by normal and vacuum melting, on its corrosion in lithium was studied. After annealing in a vacuum at 1080°C for eight hours, samples of EI437B were aged at 600, 700, and 800°C for aging times ranging from 25 to 2000 hours. Corrosion testing was performed in a convection flow of lithium with a hot-zone temperature of 700°C, temperature drop of 300°C and a test time of 100 hours. Investigation of this alloy from ordinary melts yielded analogous results: corrosion failure depends on the structural changes in the alloy but the total losses are greater than for vacuum-melted samples. Measurements of electrical resistance and microhardness after heat treatment testify that aging processes start in this alloy not much later and develop slower than in a vacuum-melted alloy. Complete stabilization of structure at 700°C  
1/2

- 19 -

USSR

SHATINSKIY, V. F., et al., *Fiziko-Khimicheskaya Mekhanika Materialov*, Vol 9,  
No 6, 1973, pp 46-49

is achieved only after aging for 1000 hours. Maximum corrosion losses are observed later and only after a 1000-hour age at 700° C. Basically, corrosion losses depend on aging time when dehomogenization of the solid solution occurs, which is in the period of secondary phase nucleation. Local corrosion occurs primarily by means of the dissolving of nickel around particles of the secondary phase. Two figures, 10 bibliographic references.

2/2

USSR

UDC 620.793

ZBOZHNAЯ, O. M., and SHATINSKIY, V. F., Physicomechanical Institute,  
Academy of Sciences Ukrainian SSR, L'vov

"Producing Diffusion Coatings With the Aid of Isothermal Mass Transfer in  
Molten Metals"

L'vov, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 9, No 4, 1973, pp 43-48

**Abstract:** This work was conducted to establish the possibility of producing diffusion coatings by means of isothermal mass transfer in molten metals and to investigate the processes which control impregnation by the same method. Samples of armco iron were subjected to impregnation in melts of Ca, Li, Na, Bi, Pd and Cd containing 5 wt% diffusing elements of Be, B, Al, V, Cr, Ga, Ge, Ni, Nb, Mo, W, and Pt. The impregnation process was carried out at 1000°C for 100 hours. On the basis of test results it was possible to conclude that the use of an intermediate makes it possible to produce a wide series of coatings. Also, isothermal transfer, production of coatings, and impregnation kinetics are determined by the difference in the chemical potentials of the impregnated and impregnating components between the phases and their adsorption activity at the interphase boundary. Phase composition and structure of a coating can be controlled by means of transport melt and impregnation mode selection. A 1/2

- 2 -

USSR

ZBOZHNAYA, O. M. and SHATINSKIY, V. F., *Fiziko-Khimicheskaya Metallichika Materialov*, Vol 9, No 4, 1973, pp 43-48

matrix is given which shows the combinations of melt and diffusion element and in which cases coatings are formed, corrosion damage occurs, inclusions in the grain boundaries occur, diffusion prevalence in the grain boundaries exists, etc. 2 figures, 1 table, 13 bibliographic references.

2/2

Corrosion

USSR

UDC 620.193.57

SHATINSKIY, V. G., and GOYKHMAN, N. S., Institute of Physico Mechanics of the  
Academy of Sciences, Ukrainian SSR, L'vov

"Mechanism of Corrosion of 1Kh18N9T Steel in Lithium During Separation of  
Secondary Phases"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 6, No 6, 1970, pp 72-75

**Abstract:** It is demonstrated that the corrosion damage to 1Kh18N9T steel in lithium occurs primarily as a result of dissolution of nickel. The processes of carbide formation occurring in this steel at 500-800°C intensify the corrosion process. From the results of the experiments performed, it is concluded that no type of preliminary heat treatment can improve viability in a melt of lithium at 500-800°C. Therefore, increased corrosion resistance of 1Kh18N9T steel in lithium can be achieved only by the application of protective surface coatings.

1/1

USSR

BARANOV, S. A., SHATINSKIY, V. M., et al. (Kurchatov Institute of Atomic Energy)

"New Data on the Alpha Decay of  $^{249}\text{Cf}$ "

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, June 1973, pp  
1970-1974.

**Abstract:** The alpha spectrum of  $^{249}\text{Cf}$  is investigated in the 5150 to 5750-kev alpha-particle range by means of a precision magnetic alpha spectrometer with spatial particle-beam focussing at an angle of  $\pi/2$ . Twenty-three alpha-transitions to  $^{245}\text{Cm}$  levels in the 0.5-1.0-Mev excitation energy range are observed. The gamma rays are studied with a Ge(Li) detector with a volume of about 5 cm<sup>3</sup>. It is possible to set up a more complete energy level scheme for  $^{245}\text{Cm}$  based on an analysis of the experimental data. In particular, rotational bands  $7/2^-[743]$  and  $7/2^+[613]$  ascribable to the 645- and 722-kev levels are observed. It is pointed out that a rotational band  $3/2^+[622]$  for an excitation energy of about 900 kev may exist.

1/1

- 85 -

"APPROVED FOR RELEASE: 07/20/2001

CIA-RDP86-00513R002202910012-2

FILE--INVESTIGATION OF ALPHA DECAY OF THE ISOTOPES TH PRIME228 AND TH  
PRIME229 -U- UNCLASSIFIED PROCESSING DATE--27NOV70  
AUTHOR--(02)-BARANOV, S.A., SHATINSKIY, V.M.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, JOURNAL OF NUCLEAR PHYSICS; MAY 1970, PP 925-32

DATE PUBLISHED-----70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--THORIUM ISOTOPE, ALPHA DECAY, SPECTROGRAPH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1519

CIRC ACCESSION NO--AP0135180

STEP NO--UR/0367/70/000/000/0925/0932

UNCLASSIFIED

APPROVED FOR RELEASE: 07/20/2001

CIA-RDP86-00513R002202910012-2"

012

CIRC ACCESSION NO--AP0135180

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS OF A STUDY OF ALPHA DECAY OF THE ISOTOPES TH PRIME228 AND TH PRIME229 ARE PRESENTED. THE MAJOR EXPERIMENTS WERE CONDUCTED ON A MAGNETIC ALPHA SPECTROGRAPH WITH SPACIAL FOCUSING OF THE PARTICLE BEAM AT AN ANGLE OF PI/SQUARE ROOT 2. IN THE CASE OF TH PRIME228, ALPHA GROUPS CORRESPONDING TO THE TRANSITIONS INTO THE RA PRIME224 LEVELS WITH QUANTUM NUMBERS 0 PRIME POSITIVE, 2 RPIME POSITIVE, 4 PRIME POSITIVE (GROUND STATE BAND) AND 1 PRIME NEGATIVE, 3 PRIME NEGATIVE (OCTUPOLE OSCILLATION BAND) WERE FOUND. IT WAS ESTABLISHED THAT THE MOMENT OF INERTIA IN THE CASE OF THE RA PRIME224 OCTUPOLE STATE IS 80PERCENT LARGER THAN IN THE CASE OF THE GROUND STATE. IN THE TH PRIME229 SPECTRUM MORE THAN THIRTY ALPHA LINES WERE DETECTED, THE MAJOR PART FOR THE FIRST TIME. EVIDENCE WAS OBTAINED THAT A ROTATION BAND WITH QUANTUM NUMBERS FIVE HALVES PRIME POSITIVE (633)

UNCLASSIFIED

"APPROVED FOR RELEASE: 07/20/2001

CIA-RDP86-00513R002202910012-2

TITLE--ALPHA DECAY OF CALIFORNIUM 250 AND CALIFORNIUM 252 -U-  
UNCLASSIFIED  
PROCESSING DATE--16OCT70

AUTHOR--(03)-BARANOV, S.A., SHATINSKIY, V.M., KULAKOV, V.M.

COUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(3), 701

DATE PUBLISHED-----70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--ALPHA DECAY, CALIFURNIUM ISOTOPE, ALPHA SPECTROMETER, EVEN  
EVEN NUCLEUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1991/1080

CIRC ACCESSION NO--AP0110770

UNCLASSIFIED

STEP NO--UR70367/70/011/003/0701/0701

APPROVED FOR RELEASE: 07/20/2001

CIA-RDP86-00513R002202910012-2"

U//  
CIRC ACCESSION NO--AP0110770  
ABSTRACT/EXTRACT--(U) GP-0- UNCLASSIFIED  
PRIME250 CF AND PRIME 252 CF WAS STUDIED BY USING A DOUBLE FOCUSING  
MAGNETIC ALPHA SPECTROGRAPH. THE VALUE OF DELTA EALPHA-EALPHA FOR ALPHA  
BANDS OF CF IS SIMILAR TO 0.03PERCENT, AT A SOLID ANGLE OF OMEGA EQUALS  
1 TIMES 10 PRIME NEGATIVE4 TIMES 4 PI AND USEFUL SOURCE SURFACE S EQUALS  
1 TIMES 40 MM PRIME2. FOUR AND FIVE ALPHA GROUPS WERE DISCOVERED IN THE  
SPECTRUM OF THESE EVEN EVEN ISOTOPES, RESP. THE ALPHA PARTICLE  
ENERGIES, THEIR INTENSITIES, AND THE LEVEL ENERGIES OF THE DAUGHTER  
NUCLEI, ALONG WITH THE CORRESPONDING VALUES OF I PRIMEPI, ARE PRESENTED.  
THE VALUE H PRIME2-2J IS SIMILAR TO 7 KEV FOR BOTH LEVELS.

PROCESSING DATE--16OCT70

UNCLASSIFIED

USSR

BARANOV, S. A., et al, Journal of Nuclear Physics; May 1970, pp 925-32

The authors extend their thanks to N. I. Aleshin, Yu. N. Dmitriyev,  
K. I. Merkulova, and V. M. Shubko for their assistance in the work.

The article includes three figures and two tables. There are 17 references.

2/2

USSR

UDC: 911.3.616.831-002

BAROYAN, O. V., MEDVEDEVA, G. I., SHATKIN, A. A., PICHUSHKOV, A. V., BESKINA, S. R.,  
ARUTYUNOVA, I. A., MARTYNOVA, V. R.

"Immunological-Epidemiological Research on Tick-Borne Encephalitis"

V sb. Materialy XV Vses. s'ezda epidemiologov, mikrobiologov i infektsionov,  
tezisy dokl. Ch. I (Proceedings of the 15th All Union Conference of Epidemiolo-  
gists, Microbiologists and Specialists in Infectious Disease, Thesis Reports  
Part I -- collection of works) Moscow, 1970, pp 186-187. (from RZh-36. Meditsin-  
skaya geografiya, No 1, Jan 71, Abstract No 1.36.86)

No abstract

1/1

"APPROVED FOR RELEASE: 07/20/2001

CIA-RDP86-00513R002202910012-2

UNCLASSIFIED  
PROCESSING DATE—30 OCT 70  
AUTHOR—[05]—LOVTSOVA, A.N., PRIME 13 C-U-  
T.N.  
COUNTRY OF INFO—USSR

SOURCE—IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 726  
DATE PUBLISHED—70

SUBJECT AREAS—CHEMISTRY

TOPIC TAGS—DEHYDRATION, CYCLOPENTANE, CARBON ISOTOPE, METHYLENE,  
CYCLOHEXENE, CHEMICAL REACTION MECHANISM

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED

PROXY REEL/FRAME—1999/1885

CIRC ACCESSION NO—AP0123673

UNCLASSIFIED

STEP NO—UR/0062/70/000/003/0726/0726

APPROVED FOR RELEASE: 07/20/2001

CIA-RDP86-00513R002202910012-2"

U//  
CIRC ACCESSION NO--AP0123673  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT. DEHYDRATION OF CYCLOPENTYLCARBINOL  
TAGGED WITH PRIME13 C AT THE METHYLENE GROUP, BY HEATING TO 340 DEGREES  
WITH H SUB3 BO SUB3, GAVE MIXED OLEFINS CONTG. 70 PERCENT CYCLOHEXENE,  
14 PERCENT 1, METHYLCYCLOPENTENE, 12 PERCENT METHYLENE CYCLOPENTANE AND  
4 PERCENT UNIDENTIFIED MATERIAL. THE CYCLOHEXENE COMPONENT CARRIED THE  
TAGGED ATOM TO THE EXTENT OF 8 PERCENT IN THE 4, AND 5, POSITIONS,  
INDICATING THAT THE INITIALLY FORMED CYCLOHEXENE IS ISOMERIZED TO SOME  
30-5 PERCENT. THE DEHYDRATION MECHANISM IS DISCUSSED.  
INST. ELEMENTOORG. SOEDIN., MOSCOW, USSR.

FACILITY:

UNCLASSIFIED

USSR

SHATKO, G. P., SUVOROVA, O. A.

UDC 621.793.3:669.248

"Effect of Molybdate Ions on the Process Rate and Utilization Factor of Hypophosphite During Chemical Nickel Plating"

V sb. Khimiya i khim. tekhnol. (Chemistry and Chemical Technology -- collection of works), Vyp. 11, Alma-Ata, 1971, pp. 45-51 (from RKh-Khimiya, No 12, Jun 72, Abstract No 12L329)

Translation: As a result of an investigation of the concentration of molybdate ions (from 0.0027M to 0.018 M) on the process rate (for pH 12-12.5) and a use coefficient of hypophosphite in an alkaline glycocoll electrolyte it was established that with a variation in concentration, the percentage content of Mo varies (from 1.7 to 6.7%) and the concentration of phosphorus varies (from 7.4 to 4.6%) in the precipitates; the precipitation rate and the use coefficient of the hypophosphite decrease (from 86 to 35%) for high I with an insufficient excess of alkali when dark precipitates are formed. It is proposed that the inhibiting effect of the molybdate ions arises from passivation of the catalytic surface of the Ni as a result of the formation of intermediate stages of its incomplete reduction. In the case of formation of bright precipitates, an increase in the hypophosphite decomposition rate constant is observed in connection with a drop in the hypophosphite use coefficient. The reduction of  $\text{MoO}_4^{2-}$  takes place at the expense of electrons according to the mechanism of

USSR

SHATKO, G. P., et al., Khimiya i khim. tekhnol., Vyp. 11, Alma-Ata, 1971, pp  
45-51

A. A. Nikiforova and G. A. Sadakov since the hypophosphite use coefficient  
does not increase but, on the contrary, decreases.

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- 11 -

USSR

UDC 669.716:621.774.38

RUBIN, Yu. L., YERMANOK, M. Z., and SHATKOV, V. A.

"The Effect of Technological Factors on the Friction Stress In Pressing  
Tubes of Alloys 01915 and 01925"

Metallovedeniye Splavov Legkikh Metallov-Sbornik, Moscow, "Nauka", 1970,  
pp 144-149, resume

Translation: The effect of the drawing factor, pressing rate, and temperature on working stresses in pressing tubes of the alloys 01915 and 01925 was investigated. Established quantitative relations make it possible to estimate the effect of temperature and the degree and rate of deformation on the stress magnitude of the metal by the friction on container walls during pressing of the alloys. Six figures, two tables, two bibliographic references.

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"APPROVED FOR RELEASE: 07/20/2001

CIA-RDP86-00513R002202910012-2

UNCLASSIFIED  
TITLE--RESISTANCE OF ALLOYS 01915 AND 01925 TO DEFORMATION FOR, SPECIFIED,  
TEMPERATURE AND EXTRUSION RATE CONDITIONS -U-  
AUTHOR-(03)-RUBIN, YU.L., YERMANOK, M.Z., SHATKOV, V.A.

COUNTRY OF INFO--USSR

SOURCE--TSVET. METAL. 1970, 43(3), 54-6

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--ALUMINUM MAGNESIUM ALLOY, ZINC CONTAINING ALLOY, METAL  
EXTRUSION, DEFORMATION RESISTANCE, METAL HARDENING, ALLOY DESIGNATION,  
DEFORMATION RATE/(U)01925 ALUMINUM MAGNESIUM ALLOY, (U)01915 ALUMINUM  
MAGNESIUM ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/1417

CIRC ACCESSION NO--AP0126955

STEP NO--UR/0136/70/043/003/0054/0056

UNCLASSIFIED

APPROVED FOR RELEASE: 07/20/2001

CIA-RDP86-00513R002202910012-2"

029  
CIRC ACCESSION NU--AP0126955 UNCLASSIFIED PROCESSING DATE--11DEC70  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AL-ZN-MG ALLOYS 01915 AND 01925  
WERE EXTRUDED AT RATES OF 6, 30, 120, AND 360 MM-MIN WITH THE  
CORRESPONDING AV. RATES OF DEFORMATION W SUBS EQUALS 4 TIMES 10 PRIME  
NEGATIVE3, W SUB360 EQUALS 2 TIMES 10 PRIME NEGATIVE2, W SUB120 EQUALS 6  
TIMES 10 PRIME NEGATIVE2, W SUB30 EQUALS 24 TIMES 10 PRIME NEGATIVE2  
SEC PRIME NEGATIVE1. AT CONST. DEFORMATION DEGREE, PSI (PERCENT), AN  
INCREASE IN TEMP. AND A DECREASE OF DEFORMATION RATES CAUSES A LOWER  
RESISTANCE TO DEFORMATION, S SUBT, AND A DECREASE IN THE INTENSITY OF  
HARDENING.

UNCLASSIFIED

USSR

MATEU, V. Yu., SHATOKHIN, O. M.

UDC: 8.74

"On Estimating the Economy of Realizing a Digital Computer Control Device"

Tr. In-ta elektron. upravl. mashin (Works of the Institute of Control Computers), 1972, vyp. 17, pp 71-78 (from RZh-Kibernetika, No 5, May 73, abstract No 5V741 by V. Mikheyev)

Translation: The paper deals with problems of estimating the expenditures on realization of signal shaping circuits for control signals (elementary commands) in the control devices of digital computers using fixed microcommand storage as the signal sensors. The evaluation criterion used is the amount of total expenditures on the microcommand storage equipment and code conversion equipment necessary for shaping elementary commands from the codes of the microcommand fields. To facilitate design work and speed up the search for an adequately economic solution, a program is written out for estimating expenses on individual components of control signal shaping circuits. The program is written in BESM-4 codes. Specific  
1/2

USSR

MATEU, V. Yu., SHATOKHIN, O. M., Tr. In-ta elektron. upravl.  
mashin, 1972, vyp. 17, pp 71-78

examples are given, and tables are presented summarizing the  
results found by using the program.

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USSR

SHATOKHIN O. M.

UDC 681.326.3

"Computer"

Patent No. 327476 (1382689/18-24 from 8 December 1969), Class G 06f 7/38  
(from Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,  
No. 5, 1972, p 140)

**Abstract:** A computer device containing an arithmetic-logic unit, a microcommand memory, a microcommand register, a circuit for forming the address of an alternate microcommand, and working registers is described. The computer is distinguished by the fact that to increase speed it contains a primary and secondary selection circuit, a digital "and" circuit, a digital "or" circuit; information inputs of the primary selecting circuit are connected with outputs of the corresponding working registers; the controlling inputs of the primary selection circuit are connected with the outputs of the corresponding bits of the microcommand register; the outputs of the primary selection circuit are connected with the inputs of the digital "and" circuit, the other inputs of which are connected with the outputs of the corresponding bits of the microcommand

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-USSR-

SHATOKHIN, O. M., Soviet Patent No 327476

register. The inputs of the secondary circuit are connected with the outputs of the arithmetic-logic unit and the outputs of the corresponding bits of the microcommand register. The selection circuits controlling the inputs of the secondary circuit are connected with the corresponding bits of the microcommand register, and the inputs of the bit-by-bit "or" circuit are connected with the outputs of the bit-by-bit "and" circuits and with the outputs of the secondary selection circuit. The outputs of the bit-by-bit "or" circuit are connected with the inputs of the working registers, the controlling inputs of which are connected to the outputs of the corresponding bits of the microcommand register.

2/2

- 71 -

REF:  
AFO106264

Abstracting Service: 67c  
INTERNAT. AEROSPACE ABST.

Ref. Code:

4P0420

A70-28184 # A device for transmitting analog signals  
(Ustroistvo dlia peredachi analogovykh signalov). V. K. Arkhipov, M.  
V. Gaifullin, Iu. N. Kruglov, and V. G. Shatokhin. *Pribyly i Tekhnika  
Eksperimenta*, Jan.-Feb. 1970, p. 195-197. In Russian.

Description of a device for transmitting information in analog form, using He-Ne laser radiation to attain a time resolution of 9 nsec. A detailed study is made of the transfer characteristics of an optical telemetric channel for transmitting pulsed nanosecond signals in analog form. It is shown that, if the light intensity at the modulator output at the initial operating point amounts to 12 to 17% of the maximum and the operating conditions of the photodetector are correctly chosen, a pulse with an amplitude of up to 300 V can be transmitted through the telemetric channel with minimum nonlinear distortions. It is noted that the wideband feature of the transmission line in such a system is determined mainly by the time resolution of the photomultiplier.

A.B.K.

REEL/FRAME  
19881508

030 UNCLASSIFIED//  
MELTING OF SILICOCRABON IN A TWO STAGE PROCESS IN A CLOSER  
DURING -U-

THOR-(05)-NAYKABIN, V.P., KOROLEV, A.A., KRYLOV, I.A., SCHCHEBEIN, A.N.,  
SHATOV, YU.I.  
TRY OF INFO--USSR

*Shator Yu.I.*

SOURCE--STAL' 1970, 30(3), 239-40

PUBLISHED-----70

JECT AREAS--MATERIALS

IC TAGS--SILICON ALLOY, CHROMIUM ALLOY, METALLURGIC FURNACE, METAL  
ELTING, CARBON ALLOY, MANGANESE

NTROL MARKING--NO RESTRICTIONS

UMENT CLASS--UNCLASSIFIED

OXY FICHE NO----FD70/605019/C09 STEP NO--UR/0133/70/030/003/0239/0240

ACCESSION NO--AP0140929

UNCLASSIFIED

CIRC ACC

USSR

LAMKOV, K. K., DOROFEEV, YU. G., and SHATOV, YU. S., Novocherassk Permanent  
Magnet Plant  
"Carbon Diffusion in a Single Crystal Alloy YuNDK24"  
Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 8, Aug 73,  
pp 72-73

UDC 539.219.3:669.784:669.25

Abstract: The diffusion of carbon was investigated in a magnetically hard alloy of the YuNDK24 type containing (in %): 23.5 Co, 13.6 Ni, 7.9 Al, 3.1 Cu, 0.7 Nb, and 0.3 Ti. To eliminate the possible effect of grain boundaries on the diffusion processes, the study was made using a single crystal measuring 10x10x20 mm. It was found that in the complexly alloyed ferrite of alloy YuNDK24 the alloying elements substantially affect the diffusion mobility and diffusion coefficient ( $D_o$ ) and Q by lowering the diffusion mobility of carbon with cobalt, rendering the greatest slowing effect of the carbide-forming elements. Three figures, one table, seven bibliographic references.

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USSR

SHATOV, YU. S., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov,  
No 11, 1973, p 69  
anisotropy of the ferromagnetic alpha particles, which increase the magnetic properties. Considering the low cost and abundant supply of copper phosphide, prospects seem good for starting up the production of phosphorus-doped YuNDK35T5 alloy.

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